Monitoring Frequency for Initial Sampling Requirements

Waterworks Size	Monitoring Type	Location	No. Samples	Frequency
Large Waterworks				
>100,000	Lead and Copper	Taps	100	6 months
	Water Quality Parameters	Distribution System	25	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Twice per 6 months
50,001-100,000	Lead and Copper	Taps	60	6 months
	Water Quality Parameters	Distribution System	10	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Twice per 6 months
Medium Waterworks				
10,001-50,000	Lead and Copper If ALs Exceeded	Taps	60	6 months
	Water Quality Parameters	Distribution System	10	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months
	Water Quality Parameters		1	Twice per 6 months
3,301-10,000	Lead and Copper If ALs Exceeded	Taps	40	6 months
	Water Quality Parameters	Distribution System	3	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months
	Water Quality Parameters		1	Twice per 6 months
Small Waterworks				
501-3,300	Lead and Copper [Note 1] If ALs Exceeded	Taps	20	6 months

	Water Quality Parameters	Distribution System Entry Points	2	Twice per 6 months
	Source Water Lead and Copper		1	6 months
	Water Quality Parameters		1	Twice per 6 months
101-500	Lead and Copper If ALs Exceeded	Taps	10	6 months
	Water Quality Parameters	Distribution System Entry Points	1	Twice per 6 months
	Source Water Lead and Copper		1	6 months
	Water Quality Parameters		1	Twice per 6 months
≤100	Lead and Copper Note 1 If ALs Exceeded	Taps	5	6 months
	Water Quality Parameters	Distribution System Entry Points	1	Twice per 6 months
	Source Water Lead and Copper		1	6 months
	Water Quality Parameters		1	Twice per 6 months
Nontransient Noncommunity Waterworks	Lead and Copper Water Quality Parameters	Taps Distribution System	No more than one per building per monitoring period	

Note 1 If system wants to attempt to demonstrate optimization based on difference between source water levels and 90% tap level. Otherwise, one sample per entry point required if an AL is exceeded.

Monitoring Frequency for Follow-up and Routine Sampling Requirements

Waterworks Size	Monitoring Type	Location	No. Samples	Frequency
Large Waterworks				
>100,000	Lead and Copper	Taps	100	6 months
	Water Quality Parameters	Distribution System	25	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
50,001-100,000	Lead and Copper	Taps	60	6 months
	Water Quality Parameters	Distribution System	10	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
Medium Waterworks				
10,001-50,000	Lead and Copper	Taps	60	6 months
	Water Quality Parameters	Distribution System	10	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
3,301-10,000	Lead and Copper	Taps	40	6 months
	Water Quality Parameters	Distribution System	3	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
Small Waterworks				
501-3,300	Lead and Copper	Taps	20	6 months
	Water Quality Parameters	Distribution System	2	Twice per 6 months
	Source Water	Entry Points		

	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
101-500	Lead and Copper [Note 1]	Taps	10	6 months
	Water Quality Parameters	Distribution System	1	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months
	Water Quality Parameters		1	Biweekly
≤100	Lead and Copper [Note 1]	Taps	5	6 months
	Water Quality Parameters	Distribution System	1	Twice per 6 months
	Source Water	Entry Points		
	Lead and Copper		1	6 months [Note 1]
	Water Quality Parameters		1	Biweekly
Nontransient Noncommunity Water Systems	Lead and Copper Water Quality Parameters	Taps Distribution System	No more than one per building per monitoring period	

[Note 1] If source water treatment installed; otherwise, see reduced monitoring requirements.

Monitoring Frequency for Reduced Sampling Requirements

Wqterworks Size	Monitoring Type	Reduced Monitoring	Ultimate Reduced Monitoring
Large Waterworks			
>100,000	Lead and Copper	50 per year	50 per 3 years
	Water Quality Parameters	10 twice per 6 months	10 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
50,001-100,000	Lead and Copper	30 per year	30 per 3 years
	Water Quality Parameters	7 twice per 6 months	7 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
Medium Waterworks			
10,001-50,000	Lead and Copper	30 per year	30 per 3 years
	Water Quality Parameters	7 twice per 6 months	7 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
3,301-10,000	Lead and Copper	20 per year	20 per 3 years
	Water Quality Parameters	3 twice per 6 months	3 twice per year
	Points of Entry Lead and		

	Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
Small Waterworks			
501-3,300	Lead and Copper	10 per year	10 per 3 years
	Water Quality Parameters	2 twice per 6 months	2 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
101-500	Lead and Copper	5 per year	5 per 3 years
	Water Quality Parameters	1 twice per 6 months	1 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly
≤100	Lead and Copper	5 per year	5 per 3 years
	Water Quality Parameters	1 twice per 6 months	1 twice per year
	Points of Entry Lead and Copper		
	Groundwater Supply	1 per 3 years	1 per 9 years
	Surface Water Supply	Annually	1 per 9 years
	Water Quality Parameters	Biweekly	Biweekly

Summary of Monitoring Requirements for Water Quality Parameters [Note 1]

Monitoring Period	Parameters [Note 2]	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica [Note 3], calcium [Note 4], conductivity, temperature	Taps and at entry point(s) to distribution system	Every 6 months
After Installation of Corrosion Control	pH, alkalinity, orthophosphate or silica [Note 3], calcium [Note 4]	Taps	Every 6 months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual [Note 5]	Entry point(s) to distribution system [Note 6]	No less frequently than every two weeks.
After State Specifies Parameter Values For Optimal Corrosion Control	pH, alkalinity, orthophosphate or silica [Note 3], calcium [Note 4]	Taps	Every 6 months
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual [Note 5]	Entry point(s) to distribution system	No less frequently than every two weeks.
Reduced Monitoring	pH, alkalinity, orthophosphate or silica [Note 3], calcium [Note 4]	Taps	Every six months, annually [Note 7] or every 3 years [Note 8] at a reduced number of sites
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual [Note 5]	Entry point(s) to distribution system	No less frequently than every two weeks.

[Note 1] Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

[Note 2] Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

[Note 3] Orthophosphate shall be measured only when an inhibitor containing a phosphate compound is used. Silica shall be measured only when an inhibitor containing silicate compound is used.

[Note 4] Calcium shall be measured only when calcium carbonate stabilization is used as part of corrosion control.

Note 5 Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) shall be measured only when an inhibitor is used.

Note 6 Groundwater systems may limit monitoring to representative locations throughout the system.

Note 7 Waterworks may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they maintain the minimum values or range of values for water quality parameters reflecting optimal corrosion control treatment during three consecutive years of monitoring.

Note 8 Waterworks may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three years if they have maintained the minimum values or range of values for water quality parameters reflecting optimal corrosion control treatment during three consecutive years of annual monitoring. Waterworks may accelerate the triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the Commissioner under 12 VAC 5-591-420 C 1 f as representing optimal corrosion control during two consecutive six-month periods.